LS2. Version A.

$$\int \frac{dx}{x^2 y} + \frac{dy}{xy^2}$$

$$P = \frac{1}{x^2 y}$$

$$\frac{\partial P}{\partial y} = \frac{1}{x^2}\frac{-1}{y^2} = -\frac{1}{x^2 y^2}$$

$$Q = \frac{1}{xy^2}$$

$$\frac{\partial Q}{\partial x} = \frac{1}{y^2}\frac{-1}{x^2} = -\frac{1}{x^2 y^2}$$

Singulära kurvor är $x \equiv 0$ och $y \equiv 0$.

Konservativt vektorfält .

Byt integrationsväg .

$$L1: \begin{cases} x = t \\ y = 1 \end{cases} \quad \begin{cases} dx = dt \\ dy = 0 \end{cases} \qquad t : 2 \to 3$$

$$L2: \begin{cases} x = 3 \\ y = t \end{cases} \quad \begin{cases} dx = 0 \\ dy = dt \end{cases} \qquad t : 1 \to \sqrt{6}$$

$$\oint_C \frac{dx}{x^2 y} + \frac{dy}{xy^2} = \int_{t=2}^{3} \frac{dt}{t^2 1} + \int_{t=1}^{\sqrt{6}} \frac{dt}{3t^2}$$

$$\oint_C \frac{dx}{x^2 y} + \frac{dy}{xy^2} = \left[\frac{1}{t} \right]_{t=2}^{3} + \frac{1}{3} \left[\frac{1}{t} \right]_{t=1}^{\sqrt{6}}$$

$$\oint_C \frac{dx}{x^2 y} + \frac{dy}{xy^2} = -\frac{1}{3} + \frac{1}{2} + \frac{1}{3}\left(-\frac{1}{\sqrt{6}} + \frac{1}{1}\right) = \frac{1}{2} - \frac{\sqrt{6}}{18}$$